

# Newsline

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## MDT On The Cutting Edge Of Technology

### *Imagine this...*

**Driving US Highway 2 on the outskirts of Glacier National Park from your personal computer.**

With the introduction of MDT's Transportation Information System (TIS), this is now a reality for MDT employees and could soon become a reality for many other Montanans.

TIS will also respond to the metric initiative by allowing each reference point to be accessed either by English (mile) or Metric (kilometer) offsets.

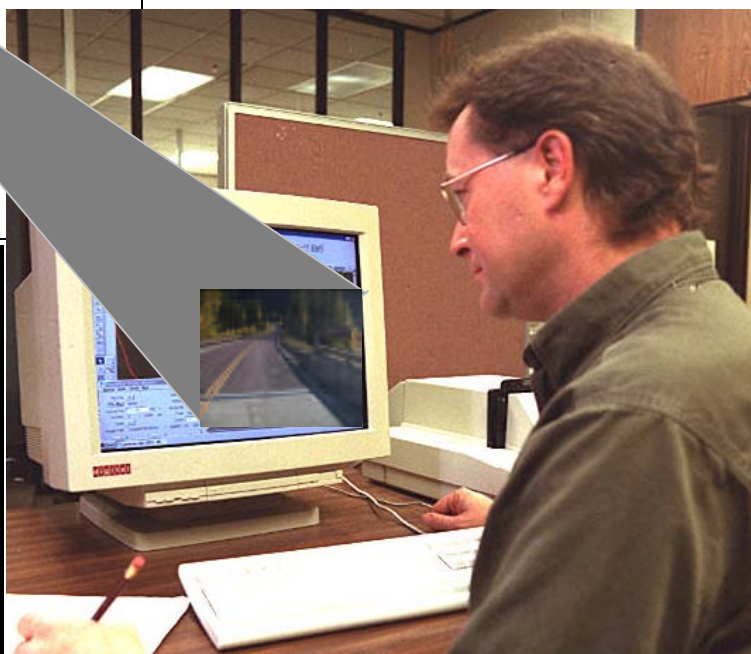
A main component of the TIS is the Digital Imaging System (DIS). With the concept that a picture is worth a thousand words, 26 years ago MDT began 'photologging' Montana's highways. This involved mount-

ing a custom-made camera on the dashboard of a panel van and driving down the road taking 100 pictures every mile. Then, the only way you could view the photos was at MDT's Helena Headquarters using a projector called a motion analyzer. Twenty-five years later, with the use of modern technology, MDT now has more than 3.7 million images of our highway system which is approximately one image every ten meters of road. Now, all of the images, maps and data

are located on a network server accessible to any user with a desktop PC. This system has already saved MDT thousands of dollars in travel expenses and years in staff time for particular applications by allowing staff to examine highways from their desks instead of making time consuming and costly trips into the field.

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The TIS is a vast collection of data describing many aspects of Montana's transportation system. The design and develop-



**Craig Abernathy of MDT's Planning Division compiling data using the TIS Image Viewer**

ment of the TIS began two years ago and is expected to be completed by the end of this year. Data on road characteristics, bridges, signs, railroad crossings, traffic and traffic safety is accumulated in a comprehensive database. The TIS concept is to have various systems of information which can be integrated to produce whatever type of data or analysis is needed. The

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# MDT's Transportation Information System

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## What Was The Evolution Of The DIS Project?

In 1996, MDT contracted with Mandli Communications of Oregon, Wisconsin to Digilog (log digital images) and collect road inventory data. This project entailed acquiring a custom-built van equipped with two digital video cameras, two computer systems, a distance-measuring device, a GPS receiver, and driving each route and loading the information into the database. By project's



Travis Smith (front) and Pat Hamper (driver) of ISB's Digital Imaging Unit using the custom van to collect GPS Images to include in MDT's digital image database.

completion in October, 1997, over 3.7 million JPEG images (approximately 24,000 miles) were collected and put on a server in MDT's headquarters. Each image is assigned a GPS coordinate and a linear reference point. MDT will continually update the DIS and is exploring ways to provide local governments and residents access to the images.

## What Systems Will Be Included In TIS and How Will They Interlink?

All TIS systems will use the Oracle Database Management System, which is more flexible and accessible than the current IBM Mainframe system. TIS will provide true referencing capabilities, such as link/node referencing and Global Positioning (GPS). These common referencing capabilities will also tie to the TIS

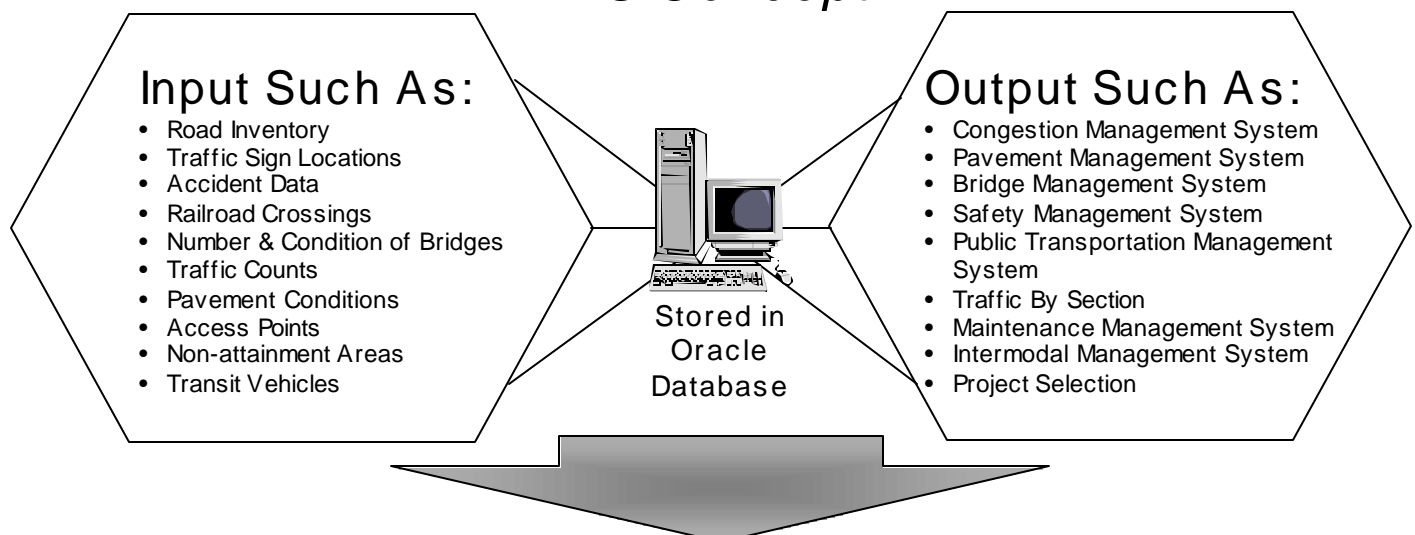
route identification and milepoint referencing. A new dynamic feature of TIS is the ability to retrieve information relating to road segments from more than one TIS component at the same time.

Currently there are eight different systems which have been redesigned using oracle databases. The possibilities for expanded use of different subsets of data are endless. The current systems residing in Oracle include:

- .. **Roadlog**
- .. **Accident**
- .. **Bridge**
- .. **Traffic**
- .. **Railroad Crossing**
- .. **Sufficiency**
- .. **Sign Inventory**
- .. **True Referencing**

By automating these systems, users will be able to query specific routes or sections of routes and get the latest data instead of waiting for biennial publications such as the Roadlog.

## TIS Concept



MDT's Mission is to serve the public by establishing a transportation system that emphasizes safety, environmental preservation, cost effectiveness and quality.



# MDT's Congestion Management System

## Traffic Congestion in Montana?

When you think of Montana, the furthest thing from your mind is probably congestion! Think again – Montana does have some traffic congestion not only in urban areas, but some rural areas as well.

## So, How Is MDT Dealing With Traffic Congestion?

Part of MDT's task of dealing with Traffic Congestion is the development of the Congestion Management System (CMS). For a long time, MDT has dealt with congestion on a case-by-case basis because detailed aggregate system-wide congestion information has never been available before. As part of TIS, MDT developed CMS which will allow the Department to be proactive instead of reactive.

## What is CMS?

CMS is a planning tool that will measure the operational health of Montana's major highway systems. With access to vast amounts of highway data, new computer programs, and increased computing power and storage, the final output comes in the form of congestion indices. These indices can measure the current and estimated future health of a partial route, several routes, or an entire highway system.

## What Type Of Data Is Collected?

The following information is compiled for each route segment: number of lanes, lane widths, shoulder widths, lateral clearance (the distance from travel lane to nearest obstruction), no pass zones, average daily traffic, terrain type, peak hour factor, truck, bus, and RV use percentages, design hour volume, design speed, median types, and access point density.

## What Is the Purpose of CMS?

The primary purpose of CMS is to determine where congestion exists today, and where it is anticipated to be in the future so MDT can proactively address congestion. Given the vast amounts of data in CMS coupled with today's computing capabilities, the CMS will undoubtedly also be used as an information resource for many other things outside the issue of congestion management. In fact, data such as location, number and types of no pass zones, access points, rumble strips, lane widths, and shoulder widths has already been compiled and is being used by different staff at MDT.

CMS results are being compiled and will be published in the near future. For further information contact Bill Cloud at 444-6114.

## Greater Yellowstone ITS (GYRITS) Corridor Project

The Greater Yellowstone Rural Intelligent Transportation Systems (ITS) Corridor includes approximately 800 miles of rural highways within Idaho, Montana and Wyoming. This area, considered rural by most, encompasses 328,600 square miles and has a population density of less than seven people per square mile. Three designated routes define the corridor limits and interconnect Bozeman, Montana to Idaho Falls, Idaho. The routes include US 191 and US 20 through West Yellowstone, I-90 and I-15 through Butte and I-90 and US 89 through Yellowstone and Teton National Parks. These rural routes serve a unique region that presents a diverse rural environment that epitomizes the problems experienced by rural highway users across North America. From high-mountain passes to stretches through desert areas, these roadways offer environmental conditions and traveler issues that lend them to rural ITS research.

Working with the Western Transportation Institute (WTI) at MSU-Bozeman, MDT is playing a major role in this regional initiative. In cooperation with the Federal Highway Administration, MDT is administering the funds and WTI manages and coordinates the project. A \$1 million Congressional Earmark obtained by MDT/WTI in the last authorization act is funding the first phase of this project and a second \$1 million Earmark is expected as part of the next transportation bill. Project planning accounts for about half of the expected project costs for

these earmarks and the remainder of the funds will be used to design and deploy ITS systems throughout the corridor.

Project managers formed a steering committee in 1996 to obtain regional cooperation and coordination. Comprised of public and private stakeholders, the committee identifies and selects projects for WTI. WTI will conduct research on the use of low-cost advanced ITS systems to solve various transportation operation problems. Researchers will evaluate each deployment and document the costs and associated benefits.

The project team has identified various corridor needs and potential projects to address them. Recently, the Steering Committee has prioritized and selected five ITS deployments and moved to fund all or a portion of each project. WTI plans to install the following ITS systems during the summer and fall of 1998:

- Interactive Kiosks at 22 locations throughout the corridor to provide traveler information.
- Cellular Incident Hotline Reporting Signs to inform travelers of what number to call for reporting emergencies.
- Dynamic Warning Variable Message System to warn drivers when their speed is too fast for road conditions.



- Multi-jurisdictional Incident Management Plan to assist in cooperatively managing the road closures throughout the corridor.
- Automatic Vehicle Identification (AVI) Systems at two Yellowstone National Park entrances allowing for vehicular gate bypassing for those park visitors who possess a pre-paid transponder. This will help reduce congestion at the Park's entrance gates.

If you have any questions regarding this project, please contact Dennis Hult at 444-9237 or email-[u4185@long.mdt.mt.gov](mailto:u4185@long.mdt.mt.gov).





# Planning Division Updates



## CTEP FOCUS BELL STREET BRIDGE - GLEN DIVE

The Bell Street Bridge is a historic six span, riveted Warren through-truss bridge over the Yellowstone River which connects the City of Glendive to West Glendive. The bridge was originally constructed in 1926 and spans a total of 1300 feet.

Currently, the bridge supports numerous utility crossings over the river and provides a means for utility personnel with trucks to conduct operations, maintenance and repair of the pipes, cables, and wires supported by the bridge. In addition, the bridge provides for a safe and essential bicycle and pedestrian link between the two communities that is accessible to disabled persons.

Montana Community Transportation Enhancement Program Funds, allowed restoration work to be done to the bridge, including pier rehabilitation, mobilization, shoring and cribbing, pier footings, concrete and reinforcing steel, and deck repair.



**Bell St. Bridge - Glendive**

## “GOING MY WAY?”

Helena's Dial-A-Ride Bus recently received funds through MDT's Transit Section to develop and maintain a rideshare program for commuters in the Helena area.



With the funds, Dial-A-Ride purchased a computer software program called “Geomatch” which matches commuters interested in ridesharing with other commuters within their areas.

Director of Helena Dial-A-Ride, Orval Meyer, said, “People in the Helena area have expressed a great deal of interest in a program of this nature. We hope that interest will help make this a successful program in the coming years.”

For more information on the new Rideshare Program, call Dial-A-Ride at 447-1580.

## TWO TRANSIT DEVELOPMENT PLANS SCHEDULED FOR THIS SUMMER

Valley County Transit in Glasgow and Blackfeet Transit in Browning will be conducting Transit Development Plans (TDP's) this summer for their transit service areas.

As part of its TDP, Valley County Transit plans to research the feasibility of establishing intercity bus service to link north-central and northeastern Montana to the national network of intercity bus providers.

TDPs are conducted in seven of the nine areas receiving Federal Transit Administration (FTA) Rural Public Transit operating funds through MDT. The TDPs are carried out every five years as part of the requirements for receiving the funds.

Funds for these TDPs come from FTA's Section 5313 - Planning and Research Program. For more information contact Janis Winston at 444-4210.

### Montana Community Transportation Enhancement Program Completed 1st Qtr 1998 Projects

- ◆ Townhall - Wibaux
- ◆ 1996 Sidewalks - Park City
- ◆ City Wide - Dixon
- ◆ Sidewalks - Laurel
- ◆ Sidewalks - Chester
- ◆ Bike/Ped Path - Sidney
- ◆ Bell St Bridge - Glendive
- ◆ Bike/Ped Path - Whitehall
- ◆ B & L Landscaping - Cut Bank
- ◆ 1st St Footbridge - Whitehall
- ◆ Shady Grove Trail - Missoula
- ◆ Rocky Pt/Hillcrest Path - Polson
- ◆ Bike/Ped Facility/Sidewalks
- ◆ Millstone and Markers - Missoula

For further CTEP project information contact:

Mike Davis (406)444-4383 E-Mail U1972@long.mdt.mt.gov or  
Ed Hedlund (406)444-0809 E-Mail U3589@long.mdt.mt.gov



# Planning Division Updates



## BUCKLE UP FOR SAFETY OCCUPANT PROTECTION TRAINING

MDT's Traffic Safety Bureau and Healthy Mothers, Healthy Babies recently co-authored a Child Occupant Protection Plan (COPP) to establish the state's education and training strategies on occupant protection. The plan identifies various resources available to the public on occupant protection, including information packets. COPP also defines the role of law enforcement in adequately enforcing Montana's occupant protection laws. As part of this effort, there are several scheduled events during April and May 1998.

### April 14 - 17

MDT's Traffic Safety Bureau and the National Highway Traffic Safety Administration (NHTSA) will jointly host another Child Occupant Technical Training course in Billings. Participants include Montana's health professionals, Native Americans, fire departments, law enforcement, other state and local agencies and Traffic Safety Offices from other states. Successful graduates are qualified to educate the public about appropriate child safety seat usage. They can also conduct safety seat checkups within their own communities at hospitals, car dealerships and health departments. Additionally, all graduates will have the opportunity to apply and become instructor-candidates based upon the criteria set by NHTSA and national agencies including AAA. Montana currently has two people who completed their instructor-candidacy in Denver in February in-

cluding Priscilla Sinclair from MDT's Traffic Safety Bureau. These certified graduates will monitor and instruct students at the April course.

COPP includes the Traffic Occupant Protection Strategies (TOPS) training program introduced by the Traffic Safety Bureau. The Bureau hosted a TOPS training session at the Law Enforcement Academy in January 1998 where many law enforcement personnel learned how to teach proper child seat and seat belt usage and proper enforcement of Montana's occupant protection laws. These January attendees will go statewide during April and May conducting more than 20 classes to instruct other

Highway Patrolmen and law enforcement personnel on occupant protection enforcement, correct safety seat and seat belt usage. In turn, the law enforcement personnel attending these classes will be prepared to "hit the ground running" this Summer to enforce Montana's seat belt and child safety seat laws. Additionally, the TOPS curriculum is now part of the Law Enforcement Academy's Basic Driving Course for new recruits. The Traffic Safety Bureau worked to integrate this program into the law enforcement curriculum by coordinating with key Academy staff members who saw the importance of strengthening public seat belt and safety seat usage.

A press conference or "kick-off" is planned in Helena on May 7 to help launch Montana's COPP statewide. The Governor, Attorney General, Montana Traffic Safety Bureau, Healthy Mothers, Healthy Babies, Department of Public Health and Human Services, and other state/local agencies will jointly host this event. The "kick off" will include a child safety seat clinic and current information including handouts on occupant protection. For more information about COPP, please contact Albert Goke or Priscilla Sinclair at 444-7417.



### Transportation Planning Division Telephone Numbers

Only the most frequently requested numbers are listed here. For an area or person not listed, call **1-800-714-7296** (in Montana only), or **(406) 444-3423**. TDY (406) 444-7696 or 1-800-335-7592

|   |          |
|---|----------|
| Administrator (Patricia Saindon) .....              | 444-3143 |
| Bike/Pedestrian                                     |          |
| (Jennifer Dalrymple) .....                          | 444-9273 |
| CTEP (Mike Davis) .....                             | 444-4383 |
| Mapping (Jim Erickson) .....                        | 444-6119 |
| Multimodal Planning                                 |          |
| (Dick Turner) .....                                 | 444-7289 |
| Projects (Jeff Ebert) .....                         | 444-7639 |
| Public Involvement (Dave Dreher) ....               | 444-6245 |
| Rail Planning (Jan Vogel) .....                     | 444-4262 |
| Safety Programs (Drug/Alcohol, Occupant Protection) |          |
| (Priscilla Sinclair) .....                          | 444-7417 |
| Secondary Roads (Gary Larson) .....                 | 444-6110 |
| Statistics (Rick Rogne) .....                       | 444-6111 |
| Traffic Safety (Albert Goke) .....                  | 444-7301 |
| Traffic Statistics (Dan Bisom) .....                | 444-6122 |
| Transit (Janis Winston) .....                       | 444-4210 |
| Urban Planning (Lynn Zanto) .....                   | 444-3445 |
| ITS Planning (Ross Tervo) .....                     | 444-9248 |
| Newsline Editor (Sally Yarnall) .....               | 444-3475 |
| Newsline Distribution                               |          |
| (Joan Scott) .....                                  | 444-7239 |



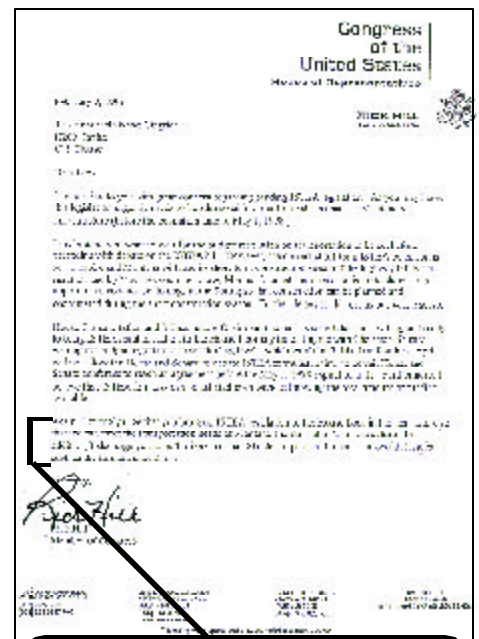
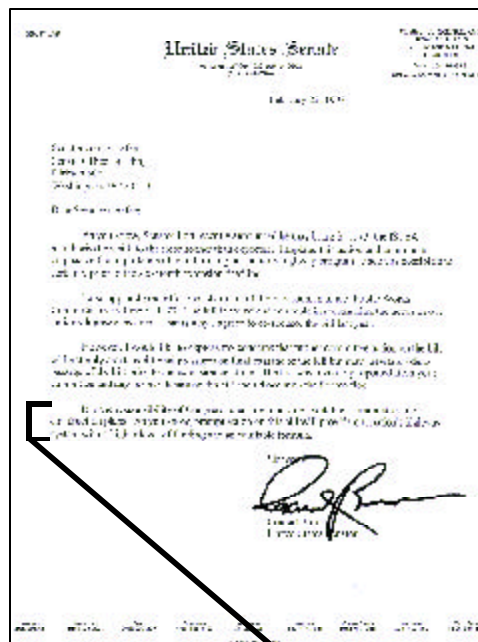
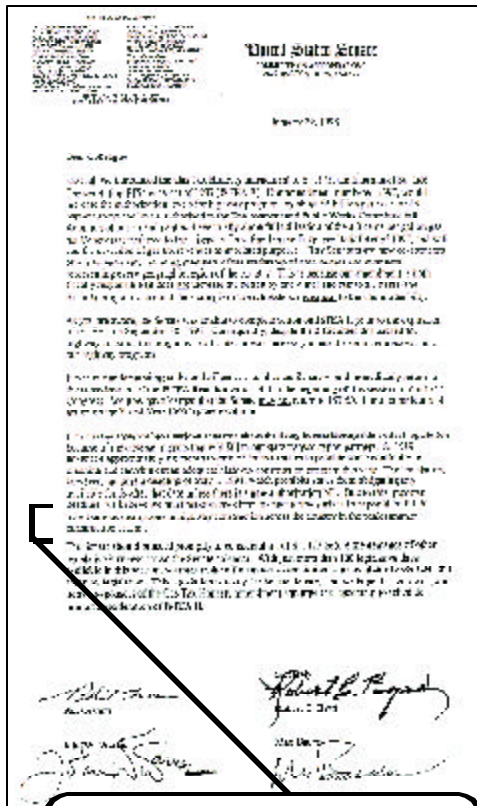
# FEDERAL TRANSPORTATION PROGRAM REAUTHORIZATION UPDATE

## Montana's Congressional Delegation Presses for Quick Action

When Congress recessed last fall, it was anticipated that Highway Program Reauthorization would be at the top of the Senate's action list when it reconvened in January. It was also anticipated the House would delay action on reauthorization until after all budget issues were resolved in mid to late spring. Even with this schedule, the highway construction program in Montana and nationwide faced possible disruptions, as the short term bill Congress passed last fall would have stopped funding May 1. However, prospects for timely action were even bleaker once

Congress returned from the December break. Senate Majority Leader Trent Lott (D-Mississippi) chose to delay the bill rather than risk passage of the Byrd-Gramm-Baucus-Warner funding amendment which would have provided for full utilization of all Federal fuel taxes going into the Highway Trust Fund. While this amendment was eventually co-sponsored by more than 55 Senators including Senator Burns and Senator Baucus as an original co-sponsor; it was strongly opposed by members of the powerful budget committee. Because of significant grass roots efforts

and broad advocacy within Congress the timetable was changed. Leaders in both chambers reached an agreement on funding which has allowed the bills to move. As described in "Hot off the Press.." both the Senate and House reauthorization bills have recently passed, with a conference committee already moving. The contribution of Montana's delegation has been important in changing the timetable and getting higher funding levels into the program. We owe them all a thanks for their efforts.



"we believe we must make every effort to enact a new surface transportation bill to avoid serious disruptions in highway construction across the country in the peak summer construction season."

"It is the responsibility of Congress to ensure funds are available to maintain state construction plans. As you know, prompt action on this bill will provide our nation's highway system with a higher level of funding and an equitable formula."

"Again, I strongly urge that you bring up ISTE legislation to the House floor in the near future so that we can meet the transportation needs of Montana and our nation's infrastructure."



# HOT OFF THE PRESS... ..

## Montana Still Fighting For Its Fair Share As Senate And House Act

With the fight to increase Federal Highway funds won and the results up to 40% more funding available nationwide, the House and Senate both rapidly moved their reauthorization legislation. This is good news because of the concern that congressional delay would have caused program disruptions and layoffs. However, vast funding distribution differences which greatly impact Montana still remain between the House and the Senate Bills.

Based on results of the House Bill passed on April 1 and the Senate Bill which passed on March 12, here is the difference in program share for Montana.

| Share of Federal Highway Funding |       |   |
|----------------------------------|-------|---|
| PAST PROGRAM                     | .92%  | <i>This could be a difference of more than \$90 million for Montana</i> |
| SENATE BILL                      | 1.06% |   |
| HOUSE BILL                       | .65%  |   |

Montana isn't the only state hard hit by the House approach. Just about every other rural western state would see a double-digit loss of share. Congressman Rick Hill opposed the House Bill because of its unfair treatment of Montana, but could do little to change the bill's direction, which was aimed squarely at improving funding for densely populated regions.

By comparison, the Senate bill reflects a balanced regional approach. The Senate's distribution formulas recognize the full extent of federal-aid highway system mileage and also recognize the huge effort that citizens of sparsely populated states like Montana make through their fuel taxes to maintain the Federal-aid roads that cross our wide open spaces.

When Congress returns from its spring break later this month, the political hardball surrounding how to distribute over \$200 billion in transportation funding over the next six years will move to a Senate-House Conference Committee. This committee is charged with working out the differences between the two bills and negotiating a final deal.

The good news is that Senator Baucus, as ranking Democrat on the Senate side, will be an important member of this conference.

We thank our entire Congressional Delegation for their extraordinary efforts on this piece of vital legislation, and we especially wish Senator Baucus well and every success in the upcoming conference.

## Transportation Tidbits!

### Did you know?....

- MDT has taken a digital image (photograph) every 10 meters on every National Highway, Primary, Secondary, and Urban System route in Montana.
- MDT has more than 3,700,000 digital images of our roads in electronic format.
- It requires 260,000 megabytes (260 gigabytes) of disk space to store these images in electronic format.
- There are more than 4,500 access points on US 2 between Idaho and North Dakota.
- Montana law states that every pedestrian within an unmarked crosswalk at an intersection has the right of way.
- A majority of bicyclists fatalities occur because of bicyclists riding against the flow of traffic. Be smart, safe and seen, ride in the same direction as motor vehicles.
- MDT's road inventory and mapping section has many types of maps available at varying levels of detail. Maps may be requested by system, county, city, or town.

## MDT Upcoming Events....

Transportation Commission  
Meetings  
April 29 & 30 - Helena  
June 10 & 11 - Lewistown

Child Occupant Protection  
Training  
April 14 -17 - Billings

Child Occupant Protection  
" Kick-Off" Press Conference  
May 7 - Helena

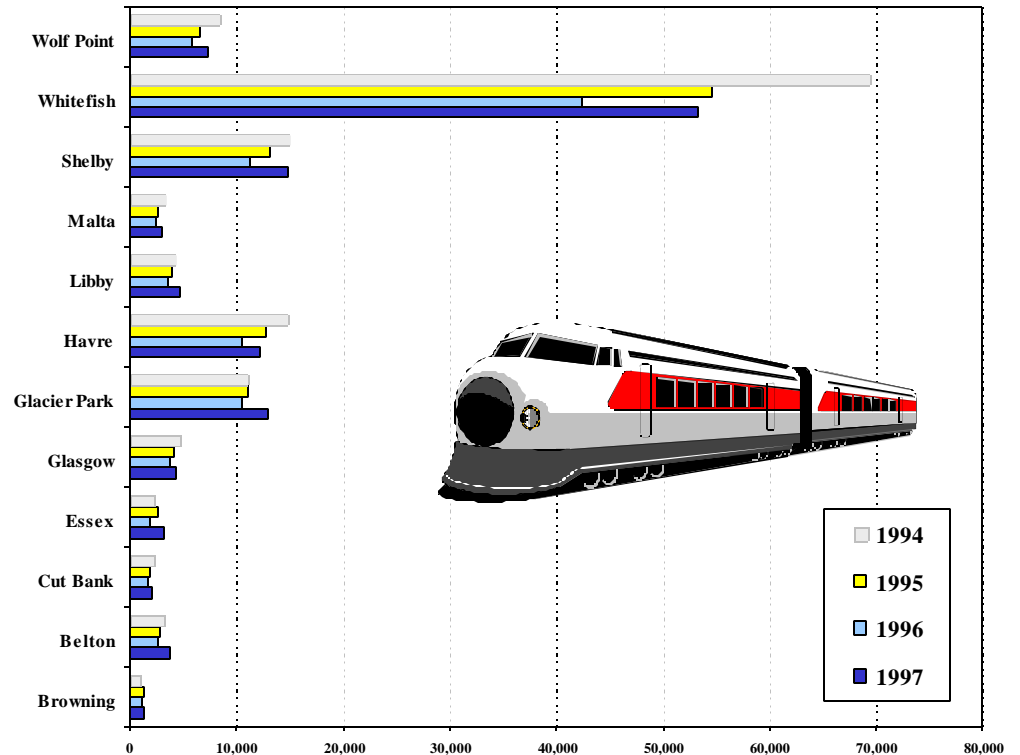
Bi-Annual ACT Training  
May 27-29 - Helena

Drug Awareness Course  
June 15 & 16 - Great Falls  
June 18 & 19 - Billings

For More Information on Any of These  
Events Call 1-800-714-7296

# AMTRAK RIDERSHIP

1994-1997\*



Source: AMTRAK/Montana DOT

\*Service reduced from 7 days a week to 4 days a week between Feb. 1, 1995 and May 11, 1997

## Montana Department of Transportation Transportation Planning Division

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# Federal Hazard Elimination Program

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## What Is The Hazard Elimination Program?

The Hazard Elimination Program is a federally funded program designed to address high hazard accident locations. Some examples of types of projects addressed with these funds are signing, delineation, guardrail installation, slope flattening, channelization, or roadway realignment.

## Who Is It Managed By?

MDT's Safety Management Section is responsible for conducting an annual review of investigated traffic accidents of record in order to develop a priority list of locations that could participate in the Federal Hazard Elimination Program.

## Where Does The Money Come From?

The funding for corrective actions at these locations is 90% Federal participation and 10% state and/or local participation.

## Who Is Eligible?

To be eligible, the city/county must be a regular participant in reporting accidents to the Highway Information System (HIS), and the proposed improvement must not be a maintenance function.

## What Are The Goals Of The Hazard Elimination Program?

The goals of the Safety Management System and Hazard Elimination Safety Program are to reduce the number and severity of crashes on Montana roadways.

## How Are High Hazard Locations Identified?

High hazard locations are identified by accident trends based on number of crashes, accident rates, severity of crashes, or a combination of these factors.

## How Many Locations From Each City/County Can Be Submitted?

Up to five locations may be submitted; these sites will be included in the overall statewide ranking and priority listing.

## What Information Needs To Be Submitted With The Application?

Safety priority list, accident analysis, traffic information and proposed improvements (See application on the back of this page).

## What Is The Review And Approval Process?

After all applications from all participating cities/counties are received, a prioritized listing by benefit/cost ratio is developed. A program for improvement will be developed, subject to the availability of funds and positive benefit/cost ratio from this listing. At that time, a copy of the listing will be distributed to participants.

## Who Is The Application Submitted To?

Montana Department of Transportation  
Safety Management Section  
2701 Prospect Ave.  
Helena, MT 59620-1001  
(406)444-6113

## When Is The Deadline For Submitting Applications?

August 1, 1998



# Application For Federal Hazard Elimination Program

Each City/County should submit one application per intersection or high hazard location (up to five) to be considered for funding with a copy of their safety jurisdiction-wide priority list.

**Send to:** Montana Department of Transportation  
Safety Management Section.  
2701 Prospect Ave.  
Helena, MT 59620-1001

1. City/County Of Area \_\_\_\_\_

2. Location Description Of Intersection Or Hazard Area

\_\_\_\_\_

3. Collision Diagram Of Investigated Accidents

- A. Type - Pedestrian, Angle, Rear-end, Other, Etc.
- B. Severity - Fatal, Injury, Or Property Damage

4. Time Period The Data Is For:

From Date \_\_\_\_\_ To Date \_\_\_\_\_

5. Traffic

- A. Average Daily Traffic Entering From Each Leg Of An Intersection
- B. Average Daily Traffic (High Hazard Location)
- C. Percent Traffic Is Projected To Increase Or Decrease In Next Few Years And A Short Explanation Of This Increase Or Decrease

6. Accident Trend And Countermeasures

- A. Identified Accident Trends
- B. Corrective Measures Proposed To Address The Accident Trends

7. Proposed Improvements

- A. Improvement To Be Considered And A Sketch Of The Improvement
- B. Detailed Estimate Of Cost For The Improvement

\*\*\* Please attach diagram and analysis to application \*\*\*